# ENGINEERING ALUMNI NEWS

UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE AND ENGINEERING
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ENGINEERING
1873 1973
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## COLD IRON and LADY GODIVA

is a book about you - -

-the graduate of SKULE

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The pictures above are only a sample of pages and pages of illustrations that will be found in the special Centennial Volume, Cold Iron and Lady Godiva, Engineering Education at Toronto 1920-1972.

The book is a survey of the Faculty of Applied Science and Engineering as an institution, as a place humming with life as a centre for undergraduate activity and faculty teaching, research and service; as a training ground for the engineers who have built our nation; and as a base for new developments in engineering education. The treatment is a combination of serious and light-hearted, as appropriate, and this is symbolized in the title. As the editors explain the main title, the first part symbolizes the professional calling of the engineer, while the second stands for his love of pleasure and his sense of community involvement.

The authors are all engineers. P. B. Hughes has traced the development of the Faculty itself; W. W. Walker the history of the Engineering Alumni Association; and W. G. MacElhinney the vigorous life of the Engineering Society (including the origins of Toike Oike and the Cannon). There are four "snapshots" of undergraduate life at various points in the Faculty's history — by A. M. Reid on the early twenties, when the veterans of the first world war were on campus; by R. S. Segsworth on the thirties, when the depression was on and meals were skimpy; by A. M. Heisey, on the Ajax years; and by Eric Miglin (last year's Engineering Society president and this year's president of the Students' Administrative Council) on student life today. Bernard Etkin, just announced as the successor to James Ham as Dean, has contributed an article on the academic staff during the half century under review; and Philip Lapp (author of the Lapp Report on engineering education) reports on a career survey of the alumni and traces the powerful impact Toronto's engineering graduates have had on all phases of Canadian development. In the final chapter, Dean Ham looks into the future of the Faculty.

The book is being published by the University of Toronto Press early in the fall. You can get a special numbered edition of the volume by giving or increasing your donation to the Varsity Fund. Here are the details:

1. First time donors must give only fifteen dollars to the Varsity Fund to receive a free book.
2. Previous donors must only increase their prior donation by ten dollars to receive a free book.
3. Donors of one hundred dollars or more will receive the book with the Centennial Logo together with their year and name embossed on the front cover.
4. Donors of five hundred dollars or more will receive the above embossed version of the book specially autographed by the President of the University, the Dean, the Engineering Alumni Association President and the President of the Engineering Society.

This special numbered edition will not be available after the Varsity Fund offer.

You owe it to yourself — give to the Varsity Fund and give yourself a little history.

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**Engineering Alumni News**
PUBLISHED BY
THE ENGINEERING ALUMNI ASS'N
OF THE
UNIVERSITY OF TORONTO
*President* ........................ *J. G. Cowan*
*Secretary* ........................ *P. B. Walters*
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*Chairman — Brian E. Dunk*
ALUMNI HOUSE, UNIVERSITY OF TORONTO
TORONTO 5 - ONTARIO

# 2 ALUMNI POSITIONS AVAILABLE ON GOVERNING COUNCIL

The Office of the Governing Council has called an election to fill 15 seats on the Council occupied by members elected for one-year terms ending June 30, 1973. Among the 15 seats, are two currently occupied by Alumni. The election of the Alumni members is being conducted by the Alumni College of Electors. The sitting alumni members who were elected for one-year terms and are eligible for nomination again are James Joyce (UC '34) and Keith Hendrick (SPS '47).

Candidates wishing to run must be Alumni of the University and must not be a member of the academic staff, administrative staff or a student of the University. They must be Canadian citizens. The term of office is three years.

The College of Electors has issued the following specific guidelines:

The candidate or his nominators must send the following information to Richard Smith, Secretary, College of Electors, Room 106, Simcoe Hall, University of Toronto, Toronto 181, no later than midnight March 14th, 1973.

1. Candidate's name (maiden name where applicable); year of birth; year of graduation; or years of attendance; college, Faculty or school; address and telephone number.
2. The signatures of ten (10) nominators (who must be alumni of the University) supporting the candidate. The nominators must include their names (maiden name); year of graduation; college, Faculty or school; address and telephone number.
3. The candidate's written consent to stand for election.
4. A biographical sketch of the candidate which should include the following information:
    1. Degrees, diplomas or certificates obtained — from what University — year.
    2. Past involvement in the University (i.e. student affairs, alumni associations, other committees, etc.)
    3. Business or profession.
    4. Community involvement.
    5. Place of normal residence.
    6. Candidates are encouraged to make any statement(s) about their candidacy they deem appropriate.
    7. Any additional information the candidate may think pertinent.

Applications for candidates will be invalid unless he or she provides name, written consent to run, 10 nominators, and biographical sketch.

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# STUDENT ANTICS

On January 19th the Centennial celebration began in grand style with the **Undergraduate Centennial** Ball at Hart House. The House was appropriately decorated with blown-up pictures of 'Historical Moments in Skule' scattered throughout the halls. Each of the course clubs had a display of some facet of their discipline. One of the most interesting was Industrial Engineering's human factors display which, amongst many other examples, demonstrated how poorly designed our modern toilets are. The highlight of the night was the model of the old Skule House constructed in the Great Hall. It stretched across the dias from wall to wall and towered almost thirty five feet above the dance floor. During intermission, Scott Jolliffe, the President of the Engineering Society, awarded Dean Ham the Skule cannon, the highest possible honour a schoolman can receive. No sooner had the Dean fired the last volley of the cannon than a beautiful, new, eighteen inch, bronze cannon appeared. It took four rounds of "Godiva" before the trusty Canonneer could get the new piece of artillery to fire, but when it finally did the resulting roar from the cheering crowd almost lifted the roof from the Great Hall. It was a fantastic evening of celebration, truly fitting for the Centennial year.

*"Model of the Old Skule House at the Undergraduate Centennial Ball"*

*"Dean Jim Ham fires the last Volley of the Old Skule Cannon"*

Apart from the Ball, students have been commemorating the Centennial in a variety of ways. On the weekend of January 19th and 20th, the Engineering Society hosted the **APEO Student Conference** with representatives from thirteen Engineering schools in the Province. The topic of discussion at the conference was "The Undergraduate Engineering Society", a subject well prepared for by each delegation. One resolution that came out of the weekend of discussion was a decision to look into the feasibility of setting up an association of undergraduate engineering societies in Ontario.

*"Guarded by a motley crew of undergraduates, the New Skule Cannon is fired for the first time"*

Another more traditional event held in commemoration of 100 years of Skule was the very popular **Skule Chariot Race** on February 2nd. It was a perfect day for the race: rainy, cold and very muddy. Hundreds of eager spectators came out to watch the thrilling sport. There were no innovative tricks or stunts however, until the flock of chariots reached the ¾ mark. At this point the Geological team, taking advantage of their slim lead and an easterly wind on the home stretch, produced and ignited a bright orange smoke bomb. The bomb left a thick and toxic trail behind the chariot, preventing the opposition from blocking their path to the finish line. The Geological victory was a great upset and would have paid at least 20-1 with all the big teams like Civil and Mechanical in the race.

At presstime, the final preparations are being made for the joint-centennial exchange with **Ecole Polytechnique.** On February 9th, 10th, and 11th almost 100 Skule men and women are going to Montreal to take part in a weekend full of activity including a conference on Collective Bargaining, men's and women's hockey, basketball, volleyball, broomball, etc. This weekend will be followed up by a return trip to Toronto in March as 100 Poly students invade Skule. One of the highlights of this second weekend will be the final judging of the technical paper competition held for the first time this year between our two schools.

After a three year lapse, **Skule Nite** has finally returned to Skule. Just as we are going to press, the last minute plans have everyone in a flap, but this is not unusual and it looks as if Skule Nite 7T3 will be a great show. We are very grateful to all those in the cast and the crew who are bringing this historical event back to life for the Centennial. Hopefully their efforts will be continued next year, and Skule Nite will once again become the most popular student event on campus.

The "**Founding Day of Skule Celebrations**" will take place on Thursday, March 29th, 1973. Lady Godiva herself (and her horse of course) will be on hand to mark this historical day in the life of SPS. The celebrations will include the traditional March of Godiva, the unveiling of "Ralph" (a sculpture donated to the Faculty by the Engineering Society), the final judging of the beard growing contest, and a host of other presentations awards and speeches to commemorate the history and spirit of Skule. The ceremonies will begin shortly after 12:00 noon on the site of the old Skule house (now the Medical Science Building). Everyone is welcome to take part in the festivities, and alumni are urged to join in.

**Happy Centennial !!**

# THE NEXT 100 YEARS

*Skulemen (staff, students and alumni) turned out in force to launch the Centennial Lecture Series on January 17, 1973. The first lecturer was the noted Nobel Laureate Dr. Dennis Gabor. Left are Dean Jim Ham, Dr. Gabor, Prof. Howard Rapson, the coordinator for the Lecture Series and Dr. John Evans, University President.*

*Below, Dr. Gabor at the podium before a packed house in Convocation Hall. The next lecture is on March 14, with Dr. Raymond Woodhams speaking on the topic, "Materials Engineering in the Next Hundred Years".*

The Centennial Lectures on "The Next Hundred Years" started with Convocation Hall completely filled to hear an outstanding introduction of the theme by Dr. Dennis Gabor, N.L.

The second Centennial Lecture on "Energy and Power — The Next Hundred Years" by Dr. Earl Cook on February 14, 1973, was mentioned in the last issue.

Dr. Raymond Woodhams will present the Third Centennial Lecture on "Materials Engineering — The Next Hundred Years" at 1:00 to 2:00 p.m. March 14, 1973, in Convocation Hall.

Raymond Thomas Woodhams was born and educated in London, Ontario. He received his B.A.Sc. and M.A.Sc. degrees from the University of Western Ontario, and Ph.D. from Polymer Institute of the Polytechnic Institute of Brooklyn, N.Y.

In 1954 he joined the newly formed Dunlop Research Centre, helping to build up one of the leading polymer research facilities in Canada. He was part of the team that pioneered the development of the ethylene-propylene elastomers (EPDM), now the second largest volume synthetic rubber in the world.

In 1968 Dr. Woodhams became Associate Professor, and in 1971 Professor, in the Department of Chemical Engineering and Applied Chemistry, U. of T., specializing in Materials Research and Plastic Engineering.

Professor Woodhams holds many patents and publications relating to novel polymer systems. Recently he has developed a new family of mica reinforced plastics capable of replacing metals, which is now being developed and manufactured by Fiberglas Canada Limited.

Dr. Woodhams will show how the use of fibres and "whiskers" as a means of reinforcing metals, ceramics and plastics has created revolutionary new kinds of materials. He will discuss how such advanced materials technology will shape our future lives and educational programmes. As the Materials Engineer turns his attention to complex biological systems with the aid of sophisticated computer-controlled automation, will he be able to rival some of nature's creations? How will the Materials Engineer affect our transportation, our housing, our recreation, our health and our environment? This lecture will attempt to forecast some possible developments in the light of current materials research activities.

Dr. Gordon N. Patterson, Director, Institute for Aerospace Studies, will deliver the Fourth Centennial Lecture on "Aerospace — The Next Hundred Years" at 1:00 to 2:00 p.m., April 4, 1973, in Convocation Hall.

Professor Patterson will give some insight into the significant developments in aerospace, yesterday, today and tomorrow in the light of some human and social conditions, with an emphasis on Canadian contributions. Dr. Patterson has been closely associated with the field of aerospace for nearly four decades: in Britain where he made significant contributions to the development of the Spitfire; in Australia as head of the Aerodynamics Department of the Council for Scientific and Industrial Research throughout world war II; in the United States, as a researcher at Cal. Tech. and the Institute for Advanced Study, Princeton, and as a consultant to the Naval Ordinance Laboratory, Washington, and to NASA for many years; in Canada, as founder and first director of the internationally known Institute for Aerospace Studies since 1948.

He is the author of many noted scientific papers, and two books on rarified gas dynamics. He has received recognition from many quarters including honorary doctorates, fellowships, lectureships, awards, and the singular honour of being appointed for two successive terms to the Science Council of Canada.

The attendance of alumni at the first Centennial Lecture was a great stimulus. We hope you will attend the remainder of the series, at 1:00 to 2:00 p.m., in Convocation Hall, on "The Next Hundred Years".

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| **March 14, 1973** | "Materials Engineering" — Raymond Woodhams |
| **April 4, 1973** | "Aerospace" — Gordon Patterson |
| **Sept. 26, 1973** | "Computers, Cancer and Control" — Richard Bellman |
| **Oct. 17, 1973** | "Engineering Design" — Herbert Simon |
| **Nov. 14, 1973** | "Biomedical Engineering" — Llewellyn Thomas |
| **Dec. 5, 1973** | "The Education of an Engineer" — Arthur Porter |

## DEVONSHIRE HOUSE

*HELP CELEBRATE THE 65th BIRTHDAY*
*OF DEVONSHIRE HOUSE ON*

SATURDAY, MARCH 10th, 1973

•

*If you lived at Devonshire House while at Skule*
*and have not been informed of the celebration*

*Contact:*
THE OFFICE OF THE DEAN
3 Devonshire Place — University of Toronto

## 5TO's 23rd ANNUAL EXTRAVAGANZA

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GOLF - - - - - TEE-OFF AT NOON
BAR - - - - TEE-OFF AT 6:00 P.M.
DINNER - - - - - A LITTLE LATER
SPEAKER

•

FRIDAY, MAY 11th, 1973

MALTON GOLF CLUB
*Airport Road — 3½ Miles North of Highway No. 7*

*— Price Under Negotiation —*

# WHAT ENGINEERS DO

*Editor's Note: You may recall the questionnaire you received from the Engineering Alumni Association last spring. The following article written by Leonard Bertin of the U of T News Bureau summarizes the results of the survey.*

While most University of Toronto engineering graduates start their careers in jobs related to their fields of initial specialization, a large proportion of them end up as presidents or vice-presidents of companies or in other senior executive or managerial positions. It seems no exaggeration to say that engineers, more than any other single profession, have made Canada the great 'trading' nation that it is.

A recent career profile study of the 16,000 living U of T Engineering graduates shows that, 20 years from graduation, more than 65 per cent of them acquire managerial responsibilities ranging from that of senior engineer to chief executive. Graduates hold presidencies of some of the largest Canadian corporations, ranging from mines to chemicals to steel, manufacturing and banking. They also constitute one quarter of all the registered professional engineers in Ontario. Some 6,200 of them practise in Metro Toronto, 5,700 in other parts of Ontario, 2,000 outside Ontario in Canada, 1,500 in the U.S.A. and 600 others in places outside continental North America.

The profile study* was commissioned by the Engineering Alumni Association as a Centennial project. It was based on a questionnaire sent to every graduate whose address is known. The purpose was to gain a better understanding of how careers progress from graduation, how the organizational structures within which engineers work are changing and how Toronto graduate engineers disperse throughout the economy and the labor force. The results will be used by the Faculty in the design of future curricula and will guide counsellors in advising young people on engineering career alternatives. They should also be useful to manpower planners in developing a closer match between the supply of and the demand for various categories of engineers.

It is interesting to note that, since the first student graduated in 1881, a total of 18,551 diplomas and bachelor degrees have been awarded by the school. In addition, masters' degrees and doctorates were conferred.

A study of the period 1881-1971 shows that the largest number of diplomas and bachelor degrees, 3,777, went to Mechanical engineers, with Civils, at 3,582, a close contender. There were 3,159 in Electrical, 2,831 in Chemical, 1,538 in Engineering Physics/Science and Aeronautical Engineering and 1,103 in Industrial Engineering and Engineering Business. In addition to these, there were 939 graduates in Mining, 579 in Metallurgy and Ceramics, 248 in Geology, 222 in Architecture (the last was in 1947) and 66 in Analytical and Applied Chemistry, a course that was withdrawn in 1920.

Another interesting tidbit from the statisticians shows the distribution of U of T Engineering graduates who are also members of the Association of Professional Engineers of Ontario. As of 1971, 4,810, or 55.5 per cent, were in industry, 1,000 in consulting capacities, 902 in either the Federal or Provincial Governments, 627 in education, 580 in public utilities and 240 were employed by municipal authorities.

A surprising fact that has emerged from the answers received is that 40 per cent of graduates seem to regard their period with the Faculty as "education" but not as training for a specific job in their own specialization. They do not enter their chosen branch of engineering, even initially on graduation.

There has been a rapid decline in the number of engineers in secondary manufacturing industries of late, including those engaged in the manufacture of durable and non-durable goods and in construction. There is also a decline in those in resource extraction. In contrast to these trends, engineers increasingly migrated to jobs in the tertiary, or service, sector. This includes consulting, education, government, utilities, communications, transportation, finance and business, personal or community services. The facts do indicate that Canada is moving towards a post-industrial society.

It is interesting to see how the frontiers of technological activity have shifted in emphasis. Many of the early nation builders were railroad engineers and James L. Morris, 8T1, the very first of our engineering graduates, spent five years in construction work with the CPR in the foothills of the Rockies and later in Northern Ontario. Opening a private practice in Pembroke (where he served as mayor for several terms), he became an authority on drainage and, among other achievements, laid out the townsite of Sudbury. Later, he became chief engineer and inspector of surveys in the Ontario Department of Lands and Forests. He was author of "Indians in Ontario", an official history and wrote many historical articles.

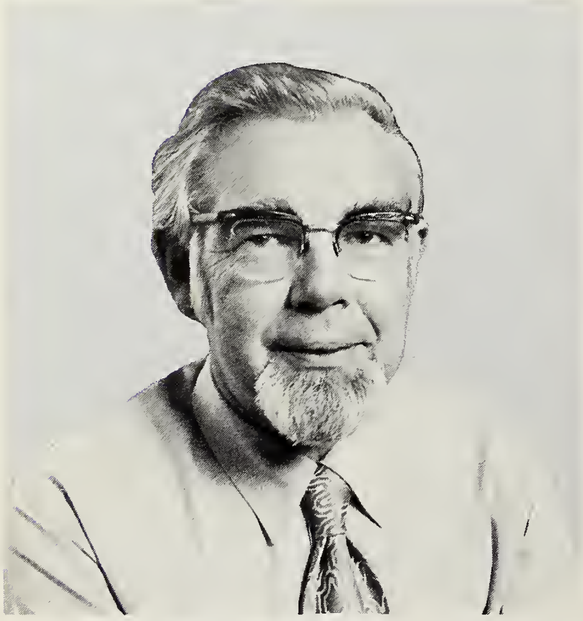
Dr. Phil Lapp, another Engineering graduate, recalls that, when Morris came up to Toronto from the Ottawa valley, he tried to enrol in University College but found there were no special lectures and no drafting rooms in the course he had chosen. "You'd better cross the lot to that red building where they are starting up a School of Practical Science", he was told by the registrar. He was sure a mistake had been made and that he would never be a U of T graduate. In 1927, however, the University conferred upon him the honorary degree of Doctor of Engineering.

Many other Toronto graduates contributed to the spread of railroads as chief engineers of the CPR or CNR or as engineers of bridges. F. V. Seibert (0T9) as Superintendent of natural resources and development and then as industrial commissioner of the CNR, while another, A. R. Raymer (8T4), became director of nine subsidiary U.S. railroads and president of four of them.

Schoolmen were and still are active in aviation, too. Notable among all the pioneers, J. A. D. McCurdy (0T7), achieved many "firsts". With his Silver Dart biplane he was the first to make a powered flight over British territory. He missed so narrowly being the first to fly from the mainland to Cuba that he was awarded $8,000 in prizes just the same and, that same afternoon, after being pulled out of the ocean after his oil had run out, he put on a fabulous display of acrobatics for his Cuban audience.

Other Toronto engineers were destined later to make tremendous contributions to the further development of the aeroplane, the jet engine and to space flight. They also made formidable contributions to the development of peaceful applications of atomic energy, both here and in Britain as well as, later, in India and Pakistan, to communications and to the mapping of this great country. They took leading roles in the design and construction of major hydroelectric and thermal power stations and in water transit systems like the Seaway complex. The innovations they introduced into the mining and refining industries were in major way responsible for the part that these industries have played in making Canada the rich country that it is.

# NEW DEAN



*Bernard "Ben" Etkin*

On the first of July this year, Bernard 'Ben' Etkin will become the new Dean of the Faculty of Applied Science and Engineering. His appointment was approved by the University of Toronto Governing Council on January 18.

Professor Etkin is a native of Toronto. He took his B.A.Sc. and M.A.Sc. degrees at U of T and joined its teaching staff in 1942. He is 56 years old, married and has two children.

A professor in the Institute for Aerospace Studies since 1957, he was chairman of the Division of Engineering Science from 1967 to 1972. He served on a number of the Faculty's standing and special committees. He was elected a member of the Senate, the President's Council and the Commission on University Government.

Professor Etkin has been a consultant with various aircraft companies and has been associated with the Defence Research Board and National Research Council. In 1971, Carlton University conferred on him the rarely given degree of Doctor of Engineering, honoris causa.

We are all very fortunate to have a man like Ben Etkin leading the Faculty into its second hundred years.

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SPECIAL YEARS
1T3 • 2T3 • 3T3 • 4T8

FRIDAY, JUNE 1st, 1973
New College — University of Toronto